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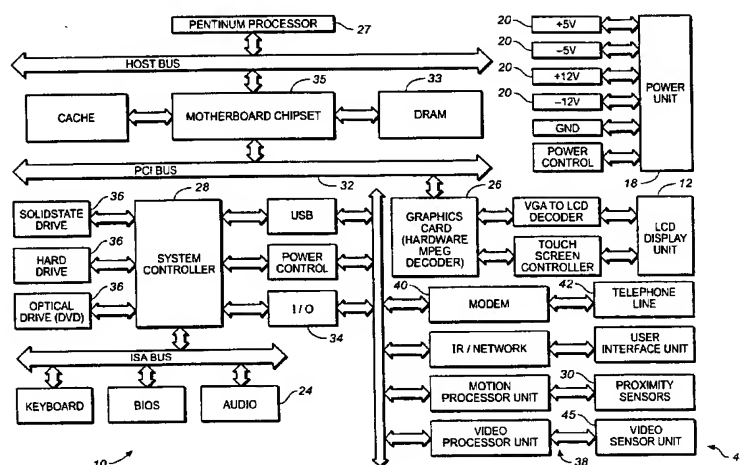
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(54) Title: INTERACTIVE PROMOTIONAL INFORMATION COMMUNICATING SYSTEM



(57) Abstract: An interactive advertising system (10) is adapted to identify, measure and track consumer exposure to a number of different advertisements and to expose consumers to several different advertisements. The system simultaneously identifies and measures the number of consumers viewing different advertisements, while displaying (12) different selected advertisements for viewing by the consumer. The system includes a display for displaying advertisements and other information. The system functions in either one of an idle mode, wherein potential consumers are not within a sensed proximity range, and an active mode, wherein the presence of potential consumers within the proximity range is detected. In the idle mode, the system displays programmed non-advertisement information. In the active mode, the display projects a programmed sequence of advertisements, that includes full-motion color commercials that may be interspersed with other information. A sound module (24) may be provided for generating an audio portion of the advertisements.

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**TITLE OF THE INVENTION****INTERACTIVE PROMOTIONAL INFORMATION  
COMMUNICATING SYSTEM****BACKGROUND OF THE INVENTION****1. Field of the Invention**

The present invention relates to interactive systems for identifying, measuring and tracking consumer exposure to promotional material.

**2. Description of Related Art**

Although electronic billboards and other forms of active advertising devices are known, an issue that presently exists in the advertising industry is the lack of accountability. Known advertising devices operate by projecting advertising information at large, regardless of the presence or absence of recipients of this information. However, simply projecting advertising information is no guarantee of the effectiveness of this information in reaching potential consumers and impacting the market for the product being promoted. Although the advertising industry is aware of this, current methods for identifying, measuring and tracking the number of consumers viewing an advertisement, which is important from many standpoints including marketing research, accounting purposes and rating services for the providers of the advertising service and their advertising clients, are arbitrary at best. Thus, there exists a need for a system that

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identifies, measures and tracks consumer exposure to a number of different advertisements and that exposes consumers to several different advertisements.

### **BRIEF SUMMARY OF THE INVENTION**

5 An interactive system in accordance with the invention identifies, measures and tracks consumer exposure to a number of different advertisements or promotional segments and exposes consumers to several different advertisements. The system simultaneously identifies and measures viewer response and the number of consumers viewing different advertisements, while displaying different selected advertisements for viewing by the consumer.

10 The system includes a projection means for projecting visual and/or audio advertisements and other information. Preferably the projection means comprises a display device such as a commercially available liquid crystal display (LCD) screen, of suitable dimensions that is housed behind a protective shield for preventing harm to the screen due to vandalism or moisture such as rain, for  
15 example. The system functions in either one of an idle mode, wherein potential consumers are not within a sensed proximity range, or an active mode, wherein the presence of potential viewers within the proximity range is detected.

In the idle mode, the system preferably displays programmed non-advertisement information that may include a picture of a missing person with  
20 an associated telephone number for contacting law enforcement officials, current weather reports, traffic reports, trivia questions, and other similar information. Once the presence of at least one potential viewer within the proximity range is sensed, the active mode of the system is invoked and the display begins displaying a programmed sequence of advertisements that may include full-motion color  
25 commercials, stop-frame commercials, and other advertisements. Information such

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as trivia questions and famous quotations, for example, can be interspersed between the advertisements if desired.

Additionally, the projection means may comprise a sound generating means. The sound generating means preferably generates an audio portion of the advertisements as they are being displayed by the display means. Optionally, the sound generating means may generate advertisements that are only audio, and may not accompany any video being displayed or may generate audio related to a stop-frame commercial or related to non-advertisement information on the display and for generating any associated audio. Audio content may also be used to attract potential viewers to the display by calling out to them and to interact with them in a manner similar to a conversation between persons. The audio content could be changed or act as a prompt as the person came closer to the display in a manner that would acknowledge their interest.

Additionally, the projection means may comprise a scent generating means. The scent generating means preferably generates a scent associated with the advertisements as they are being displayed by the display means. The scent generating means is to enhance greater memory recall of a given advertisement by projecting an odor, fragrance or aroma associated with the advertisement.

Additionally the projection means may comprise other devices intended to stimulate human senses such as the sense of touch. Tactile stimulators could be programmed, for example, to stimulate the fingers to mimic the feel of certain objects.

Once it is sensed that viewers are no longer present within the sensed proximity range, the idle mode is again activated for displaying the mode's associated non-advertisement information.

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The system of the invention includes a means for determining the activation time period of the active mode and for determining the portions of the programmed sequence of advertisements that were displayed during the active mode, for determining the particular advertisements that may have been viewed by an identified viewer as well as viewer response. The system generates consumer tracking data and viewer response representative of the time period that the active mode was invoked and portions of the sequence of advertisements that were displayed during the active mode and transmits the tracking data to a host computer to be analyzed.

The tracking data can then be retrieved from the host computer for determining what information in the active mode was displayed and the duration that the system was in the active mode, for determining consumer presence, and identification, consumer response and what portions of the active mode information may have been viewed by potential consumers. Thus, the viewer response and tracking data provides information that indicates the viewer response and the number of consumers that are present within the proximity range and viewing the display, along with the number of occurrences that particular advertisements were presented to potential consumers, since the location of each advertisement on the sequence is known. Therefore, the system of the present invention provides the advertising industry a higher level of accountability than existed in the prior art.

In the preferred embodiment, the system of the present invention further includes a computing means coupled to the display means and to proximity sensing means for detecting the presence of potential consumers within the proximity range relative to the display screen. A memory means is coupled to the computing means and is provided for storing the information displayed during the idle and active modes. The memory means may also be utilized for storing the

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identification, viewer response and consumer tracking data prior to transmission of the data to the host computer.

The proximity sensing means may comprise any one of several commercially available or custom-designed sensors. These include position and distance sensors, pressure sensors activated by body or vehicle weight, a receiver for voice activation, a variety of switches intended to sense use or consumer action involving a telephone handset, door, seat, or bus grab handle, heat sensors, or other sensors that are capable of detecting persons, or appropriate combinations thereof. Suitable heat sensors include commercially available heat sensors and infrared detectors. Proximity sensors may include ultra-sound sensors or complex sensors operating with an object recognition algorithm. A plurality of ultra-sound sensors may be used for improving the accuracy and detection range of the system. Complex sensors, such as facial recognition, optical sensors (e.g. retinal or iris scans) or cameras, or combinations thereof, can be used for determining the shape of and identifying a viewer within the proximity range and for determining if a viewer is facing the display means, to determine if the viewer is actually viewing information being shown by the display, to determine what portion of the display is being viewed, or to determine the interest level on the part of the viewer to what is being seen, using such measures as changes in eye pupil size or an analysis of fine eye movement. It is also anticipated as part of the present invention that an electronic camera or audio detecting means (such as a microphone connected to a voice processor) may be used to identify and obtain information about the viewer and how they are interacting with the display. This camera or microphone might be connected to a computer that would provide processing local to the display or sent over a suitable network for remote processing. The remote processing means may be either an automatic computer system or may consist of human operators, trained or programmed to determine certain characteristics of the viewer. These characteristics include, but are not limited to, approximate age, nationality, race or

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ethnic background, gender, physical characteristics, or interest level in what advertisement is being shown.

In addition, proximity sensing may be implied by the use of devices physically adjacent to the system of the present invention, such as a gasoline pump, telephone or an automatic teller machine (ATM). In this embodiment the adjacent device would communicate using a data link with the display unit such that proximity would be inferred when someone used the adjacent device.

Another application that uses visual and audible sensing of the viewer would be in determination of the identity of the viewer by means such as analysis of a voiceprint, facial recognition, or retinal scan. This identity information, when combined with information from other databases, could be used to project viewer specific advertising that is custom created for that particular individual. For example when an individual uses a credit card at the gas pump their identity is known, and it is possible to simultaneously capture their picture and voiceprint. The next time they get gas at that station it would be possible to identify them from their picture or voice in advance of using a credit card. Since it is now common practice in the financial services industry to build databases that contain personal spending information on individuals, and since their identity and spending profile would be known once they appeared at the gas pump, it would be possible to create a targeted advertisement that would be custom to that individual. In addition the system can directly correlate viewer identity with subsequent purchases. For example a consumer views a soft drink commercial and is motivated to purchase the soft drink shortly thereafter. Another example would be that a consumer views an appliance commercial and purchases the appliance in the near future with a credit card, and the purchase event can thus be linked to the viewing event through the credit card database.

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The invented system further includes a communication means such as a modem or other known data transmission means for connecting one or more systems comprising the present invention to at least one host computer. A plurality of systems comprising the present invention can be coupled to the host computer  
5 via known data transmission lines or wireless communication links and using known methods such as the Internet or an intranet. The communication means may also receive information, such as current weather reports and traffic reports for example, from the host computer or other data source coupled to the communication means.

10 Detection of someone viewing the advertisement is a form of feedback that is of value to the advertiser. Other methods of feedback may be used to measure viewer response. These include means for the viewer to interact with the system, indicating that not only is the viewer watching the display but is interested enough in the content to interact. These forms of feedback may range from a simple button  
15 on the display or housing that the viewer may press when prompted by a displayed message or a more sophisticated key panel or a telephone number pad or a credit card reader or a separate communications device that would permit an immediate purchase or an audio receiver that could detect and analyze an audible response from the viewer. Said audio receiver could be connected to a voice recognition  
20 system as a means of interpreting what was said by the viewer.

The sequence of advertisements or images presented on the display and the audible messages may be changed or new advertisements or messages may be displayed depending upon feedback from a viewer in an effort to respond or interact to the feedback. It is envisioned that this interaction, if carried out with  
25 both visual and audible means, could be refined to have characteristics similar to a natural human interactive dialog.



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It is also envisioned within the scope of the present invention that the advertising material presented to the viewer may be changed depending upon the position of the viewer or the proximity to another device or the time of day. For example, a transit bus may be equipped with a system of the present invention. A seat switch would trigger the display to enter active mode when someone sits  
5 down. The system would also know its position within a city by use of a Global Positioning System (GPS) receiver or other means known in the art. The display would present an advertisement for a restaurant that would be coming up at the next stop of the bus. In another example, the system would be at a fixed location  
10 such as at a city park, and would also be connected to a data link used to determine the distance to a food vendor's truck. When a viewer walked up to the display it would enter active mode and then display an advertisement for the food vendor with an estimate of how many minutes to wait until the food truck would arrive. The feedback means could then be used to permit the viewer to order from a menu,  
15 this information would be relayed to the food truck so that the chef could prepare the food in transit. A final example here is that the advertising message can be changed depending on the time of day, selling coffee in the morning and cocktails in the evening.

It is further envisioned that the advertising material presented may be  
20 changed based upon information gathered by the sensors. For example, analysis of the video image of a viewing consumer may yield demographic information to permit targeted advertising to a specific demographic audience.

A further extension envisioned for the invention is for use in computer monitors and televisions to track viewing of material presented on the screen. A  
25 sensor device, previously described, could be installed in the cabinet of the monitor such that it can observe the eye and head movements of the viewer or determine if a potential viewer is within the proximity of the screen. Advertising or other material would then be presented on the screen, or on a portion of the screen, and

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the sensors of the invention would track eye movement to determine if the viewer were looking at the advertising material, how long they were looking, their interest level in the material, the volume setting of the audio channel, the amount of background distraction, and also to collect demographic and possibly identification information about the viewer. This information, including information related to the quality of the viewer response to the advertising, could be processed by the computer associated with the display unit or television, or automatically transferred back to a central database via a communication channel such as the Internet or cable network or telephone line.

The system of the invention is preferably retained in a suitable housing that will prevent damage, due to moisture or vandalism, for instance, to the system. In the preferred embodiment, the housing comprises a strong, waterproof material, such as stainless steel and is fabricated using well known methods.

#### **BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)**

Many advantages of the present invention will be apparent to those skilled in the art with a reading of this specification in conjunction with the attached drawings, wherein like reference numerals are applied to like elements and wherein:

FIG. I is a block diagram of a preferred embodiment of a system for identifying, measuring and tracking consumer exposure to a number of different advertisements and for exposing consumers to several different advertisements constructed according to the principles of the present invention;

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FIG. 2 is a schematic front elevation of a system in accordance with the present invention; and

FIG. 3 is a schematic top elevation of a system in accordance with the present invention; and

5           FIG. 4 is a diagrammatical representation of system operation in accordance with the invention.

### **DETAILED DESCRIPTION OF THE INVENTION**

Referring now to the drawing figures, there is shown generally at 10, a system in accordance with a preferred embodiment of the invention for identifying, measuring and tracking consumer exposure to a number of different advertisements and for exposing consumers to several different advertisements or promotional segments and for gathering information about consumers. The system 10 simultaneously identifies, measures and tracks the number of consumers viewing a number of different advertisements, while displaying different selected advertisements for viewing by the consumer.

The system 10 includes a projection device such as a display 12 for displaying advertisements and other information. Preferably, the display 12 comprises a commercially available Liquid Crystal Display (LCD) screen, or other low power consumption screen, of suitable dimensions that may be housed behind a protective shield 14 (FIG. 2) for preventing harm from coming to the display 12 due to vandalism or moisture such as rain, for example. The LCD screen preferably ranges in size from approximately 11.5 to 52 inches, and may comprise a known TFT Active Matrix LCD screen. The protective shield 14 preferably comprises a strong transparent polycarbonate, such as Lexan, to prevent damage to

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the display 12 due to impact forces. The protective shield 14 may have a layer of a commercially available scratch resistant material 15, such as that sold under the trademark VANDAL SHIELD. The scratch resistant material 15 prevents damage to the protective shield 14 due to vandalism such as scratches, and may have a  
5 layer of commercially available non-glare coating to minimize bright light glare in sunlight for example.

As shown in FIGS. 2 and 3, the system 10, and particularly the electronics thereof (to be discussed hereinafter), is preferably retained in a protective housing 16 that comprises a strong, waterproof material, such as stainless steel or other  
10 suitable material. The housing 16 is provided to prevent damage, due to moisture or vandalism for instance, to the system 10. The housing 16 includes a mounting plate 17 for securing the system 10 to a selected surface for viewing at a desired location.

An external 120V AC power source (not shown) is coupled to the system  
15 10 via a power unit 18, for providing electrical power to the system 10. The power unit 18 first converts the 120V AC power to a 24V DC power level. The unit 18 then converts the 24V DC to a number of different preferred electronic device power levels. The unit 18 has power outputs 20 of levels +5V, -5V, +12V, -12V, so that the components of the system 10 do not suffer damage due to excessive power  
20 levels. The power unit 18 is coupled to the system 10 via a waterproof, flexible conduit 22 (FIG. 2) which houses power source lines and data transmission lines 23.

The system 10 functions in either one of an idle mode, wherein potential consumers are not within a sensed proximity range or zone, or an active mode,  
25 wherein the presence of potential consumers within the proximity range is detected. In the idle mode, the system 10 preferably displays programmed non-advertisement information, that may include a picture of a missing person with

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an associated telephone number for contacting law enforcement officials, current weather reports, traffic reports, trivia questions, and other similar information through display 12. Once the presence of at least one potential consumer within the proximity range is sensed, the active mode of the system is invoked and the display 12 begins displaying a programmed sequence of advertisements and promotional segments that may include full-motion color commercials, stop-frame commercials, and other advertisements. Information such as trivia questions and famous quotations, for example, can be interspersed between the advertisements if desired. Once it is sensed that consumers are no longer present within the sensed proximity range, the idle mode is again activated for displaying the mode's associated non-advertisement information.

Additionally, the system 10 may comprise a sound generator 24. The sound generator 24 preferably generates an audio portion of the advertisements as they are being shown on the display 12. Optionally, the sound generator 24 may generate advertisements that are only audio, and may not accompany any video being shown or may generate audio related to a stop-frame commercial or related to non-advertisement information on the display 12 for generating any associated audio. In the preferred embodiment, the sound generator 24 comprises a commercially available printed circuit board that includes data processing circuitry, and is commonly referred to as a "sound card." The audio level generated by the sound card can be predetermined.

An MPEG graphics control and decoding unit 26 is coupled to the display 12 and to a microprocessor 27 of a computing device 28. The MPEG decoding unit 26 is coupled to the display 12 and microprocessor 27 for controlling information shown on the display 12. The MPEG decoding unit 26 performs MPEG data compression for transferring both video data and data status information. The MPEG decoding unit 26 enables the computing device 28 to be securely and efficiently utilized. The MPEG decoding unit 26 coacts with the

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sound generator 24 to produce desired sound effects, so that the sound effects can be optionally played with or without the video on the display 12.

5 The system 10 of the present invention is designed to determine the activation time period of the active mode and for determining the portions of the programmed sequence of advertisements that were displayed during the active mode in order to determine the particular advertisements that may have been viewed by the consumer. The system 10 is also designed to generate consumer tracking data representative of the time period that the active mode was invoked and what portions of the sequence of advertisements were displayed during the active mode and can operate to transmit the identification, viewer response and tracking data to a host computer (not shown). In this manner the system 10 forms part of a network of such systems disposed at discrete locations and inter-connected for uni-directional or bi-directional communication with one or more remote host computers. The communication between these devices can be effected through the internet, intranet, and/or wirelessly.

10 In the preferred embodiment, the system 10 includes the controller 28 coupled to the display 12 and to a sensing system 38 for detecting the presence, identity, response and behavior of potential consumers within a proximity range relative to the system 10, and particularly, relative to the display 12. The controller 28 of the preferred embodiment consists of a commercially available microprocessor based system that includes the microprocessor 27, a PCI data bus 32, temporary memory such as DRAM 33, data input and data output (I/O) support 34, and peripheral data processing devices in a motherboard chipset 35 as is known.

25 One or more storage devices 36 are coupled to the controller 28 and are provided for storing the information displayed during the idle and active modes of the system 10. The storage devices 36 may also be utilized for storing the identity,

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viewer response and consumer tracking data prior to, or in lieu of, transmission of the data to the host computer. The storage devices 36 may comprise a known hard disk drive, such as one used in a portable computer, optical drive, or a solid state storage device, such as an EEPROM, FLASH EEPROM, or SRAM memory device array. Use of a CD ROM in lieu of a hard disk drive in order to conserve unit space and minimize cost is also contemplated.

After the identity, viewer response and consumer tracking data is generated, the identity, viewer response and tracking data can be retrieved from the host computer or locally for determining what information in the active mode was displayed and the duration that the system 10 was in the active mode, for determining consumer presence and what portions of the active mode information may have been viewed by potential consumers. The identity, viewer response and tracking data can additionally be used for billing users of the invented system 10 and for compiling data bases for marketing and other purposes.

Thus, the identity, viewer response and tracking data provides information that indicates the level of interest and number of consumers that are present within the proximity range and viewing the display 12, along with the number of occurrences that particular advertisements were presented to potential consumers, since the location of each advertisement on the sequence is known. Therefore, the system of the present invention 10 provides the advertising industry a higher level of accountability than existed in the prior art.

The sensing system 38 may comprise any one of several commercially available proximity sensors 30, such as motion detectors or heat or optical sensors, or other sensors that are capable of detecting persons, or appropriate combinations of known sensors of the same or different types. Sensing system 38 may include ultrasound sensors operating in conjunction with complex detection devices 44 whose outputs are subject to prescribed pattern recognition algorithms. As an

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example, proximity sensors 30 may comprise ultrasound sensors having adjustable proximity range for improving system accuracy and detection range. Proximity sensors 30 operate to trigger the active mode of the system 10, which is recorded and analyzed, and also to trigger operation of complex detection devices 44  
5 designed to identify consumers and recognize specific patterns such as a viewer's eyes or face direction. A plurality of ultrasound sensors may be used for improving the accuracy and detection range of the system. Ultrasound sensors (not shown) provide an adjustable proximity range. Those skilled in the art will recognize that any combination of operating procedures for the system 10 and the  
10 sensors 30 and detection devices 44 may be utilized without departure from the spirit and scope of the invention.

Complex detection devices shown generally at 44, that may include or comprise cameras, facial recognition or optical scanners, or combinations thereof, can be used for determining the identity and shape of a viewer within the proximity  
15 range and for determining if the viewer is facing the display 12, and/or to determine if the viewer is actually viewing information being shown by the display 12. For example, the complex detection devices 44 may include one or a combination of video cameras 45, digital cameras, facial recognition or optical scanners for identifying or recognizing the shape of viewers and/or their viewing  
20 direction within a viewing range of the cameras 45. A viewer's identity or intention can be determined by triggering sensor system 38 to locate two concentric circles spaced approximately 1 to 2 inches apart. Once the characteristics of the consumer facing the display 12 are detected, the sensor system 38 processes and stores detailed information relating to the identity or  
25 characteristics of the consumer for later analysis by the system 10 or host computer. This information may be used for billing and status information of the system 10 at a particular location, or for a number of different systems 10 placed at a number of different locations. Of course, the functions of sensors 30 and detection devices 44 may be integrated into a common device such that detection



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devices 44 may for example operate to sense the presence of a viewer and then proceed to analyze patterns related to the viewer which are indicative of his/her attentiveness to the system 10.

5 The system 10 further includes a communication device such as a modem 40 or other known data transmission means for connecting one or more systems comprising the present invention 10 to at least one host computer. A plurality of systems 10 comprising the present invention can be coupled to the host computer via known data transmission lines 42 and using known methods such as the Internet and an intranet as mentioned above. The communication device 40 may  
10 also be utilized to enable the system 10 to receive information, such as current weather reports and traffic reports for example, from the host computer or other data source coupled to the communication device. Of course data transmission is not confined to transmission lines 42 as the use of wireless communication between the systems 10 and the host computer is also contemplated by the  
15 invention.

Thus, the system of the present invention simultaneously identifies, measures and tracks the number of consumers viewing different advertisements, while displaying different selected advertisements for viewing by the consumer. The system functions in either one of the idle mode, wherein potential consumers  
20 are not within a sensed proximity range, and the active mode, wherein the presence of potential consumers within the proximity range is detected. In the idle mode, the system displays programmed non-advertisement information. In the active mode, the system displays a programmed sequence of advertisements, that may include full-motion color commercials that may be interspersed with other  
25 information. The time period of the active mode is sensed for determining the portions of the programmed sequence of advertisements that were displayed during the active mode, for determining particular advertisements that may have been viewed by the consumer to generate consumer tracking data. The tracking data is

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retrieved from either the remote unit or a host computer for determining what information in the active mode was displayed and the duration that the system was in the active mode for determining consumer presence, identification and what portions of the active mode information may have been viewed by consumers.

5           Operation of the invention can be explained with reference to FIG. 4. In step 100, the system 10 is operating in idle mode, in which it is displayed for generally projecting programmed non-advertisement information such as trivia questions or other similar information, a picture of a missing person with an associated telephone number for contacting law enforcement officials, current  
10 weather reports or traffic reports or other real time information or updates uploaded from a remote location through the internet or wirelessly.

          In step 102 the system 10 senses an activity, such as the presence of a person in a detection zone of sensor system 38. In response to the activity sensing step 102, the system 10 then implements one or more of steps 104, 106,  
15 108 and 116. Step 104 engenders the determining of a distinguishing characteristic of the person responsible for the sensed activity. Examples of distinguishing characteristics include, but are not limited to, gender, race, ethnic background, age, nationality, height, weight and shape of the person. Known computational and pattern recognition algorithms can be applied to make these  
20 determinations from optical images or other sensed information detected by sensing system 38 and operating in conjunction with controller 28. The determination of the distinguishing characteristic or characteristics effected in Step 104 can be followed by the generation of data reflecting the types of viewers who have taken an interest in the communicated promotional information, for  
25 purposes of accountability to participating advertisers, for instance. The information derived from Step 104 can also be used to develop a demographics profile for marketing or other purposes, using either system 10 or a remote

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system to which the information is downloaded. The information from Step 104 can also be used as indicated in Step 110, to selectively communicate promotional segments based on the distinguishing characteristic of the person responsible for the sensed activity. In other words, the information can be used to target a  
5 specific demographics group for a particular product or service. One example can be promoting sports cars to young males. Step 102 can also be followed by Step 106, wherein a feature of the sensed activity is identified. The feature can be the location of the sensed activity. This is useful for example when the system  
10 is disposed at least partially in a moving public vehicle, such as a transit bus, with the location of the bus at the time the activity is sensed being determined, for example, using known GPS (Global Positioning System) expedients. One use of this would be to promote products or services whose vendors are in the region of the bus at the time the activity is sensed, and even to offer for sale through the system 10 these products or services. The step of projecting promotional  
15 segments specific to the identified feature of the activity is designated Step 112.

Step 102 can also be succeeded by Step 108, in which promotional information can be communicated to the person responsible for the sensed activity, and then followed by Step 114, which entails determining the level of interest in the communicated promotional information. Such information is  
20 useful in marketing research and can be determined by analyzing the length of time that the viewer is viewing display means 12 or a portion thereof, or the quantity or quality of input received from the viewer by the system, if the system is equipped to make such a determination, by for example, being designed to be interactive with the viewer through the use of a keyboard or speech recognition  
25 expedients. It is also possible for Step 102 to be followed by Step 116 in which the viewer is identified as a specific individual by the system 10 based on visual or audible sensing of features of the viewer and on previous sessions and with recourse to data compiled from previous purchasing behavior or other financial

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profiles and information about the viewer. Viewer identification indicated in Step 116 can be followed by Step 118 in which viewer-specific information is projected, and/or Step 120, in which a data base is built (or an existing data base augmented) about the viewer for subsequent targeting and/or correlation with  
5 subsequent purchases by the viewer through the matching of credit card information, for example.

The above are exemplary modes of carrying out the invention and are not intended to be limiting. It will be apparent to those skilled in the art that modifications thereto can be made without departure from the spirit and scope of  
10 the invention as set forth in the following claims.

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## **CLAIMS**

1. An automated method for communicating individualized promotional information to a person, the method comprising:

sensing an activity;

5 determining a distinguishing characteristic of a person responsible for the activity; and

selectively communicating one or more promotional information segments to the person based on the determined distinguishing characteristic of the person.

2. The method of Claim 1, further comprising the step of determining  
10 the person's interest in the communicated promotional information segments.

3. The method of Claim 2, wherein the promotional information segments are communicated to the person using an electronic display.

4. The method of Claim 3, wherein the step of determining the person's interest comprises determining whether the person is looking in the  
15 direction of the electronic display.

5. The method of Claim 4, wherein the step of determining the person's interest comprises determining the duration that the person is looking in the direction of the electronic display.

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6. The method of Claim 2, wherein the step of determining the person's interest comprises measuring changes in the person's eye pupil size.

7. The method of Claim 2, wherein the step of determining the person's interest comprises analyzing eye movement of the person.

5 8. The method of Claim 2, wherein the step of selectively communicating is further based on the determined interest.

9. The method of Claim 1, further comprising the step of determining whether the person ordered or purchased a product or service which is the subject of a communicated promotional information segment.

10 10. The method of Claim 1, further comprising the step of determining whether the person ordered or purchased a product or service which is the subject of a communicated promotional information segment within a predetermined period of time.

11. The method of Claim 1, further comprising the step of determining  
15 whether the person ordered or purchased a product or service which is the subject of a communicated promotional information segment from a predetermined vendor.

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12. The method of Claim 1, further comprising the step of affording the person the opportunity of effect a purchase or order of a service or product which is the subject of a communicated information segment.

5 13. The method of Claim 12, wherein the step of affording comprises establishing communication between the person and a vendor of the product or service.

14. The method of Claim 12, wherein communication is established using an input device.

10 15. The method of Claim 1, wherein the step of determining a distinguishing characteristic comprises accessing pre-stored information about the person.

16. The method of Claim 15, wherein the pre-stored information is conveyed via a data link from a remote location to the location from which the promotional information segment is communicated.

15 17. The method of Claim 1, wherein the step of determining a distinguishing characteristic comprises determining one or more characteristics selected from the group consisting of gender, race, ethnic background, age, nationality, height, weight and shape of the person.

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18. The method of Claim 17, wherein the one or more characteristics are determined by facial scanning.

19. The method of Claim 17, wherein the one or more characteristics are determined by an optical detector effecting a retinal and/or iris scan.

5           20. The method of Claim 17, wherein the one or more characteristics are determined by voiceprint analysis.

21. The method of Claim 1, wherein the step of sensing comprises sensing entry of the person into a detection zone.

10           22. The method of Claim 1, wherein the step of sensing comprises sensing pressure exerted by the person.

23. The method of Claim 1, wherein the step of sensing comprises sensing pressure exerted by vehicle operated by the person.

15           24. The method of Claim 1, wherein step of sensing comprises sensing heat and/or infrared radiation emitted by and/or reflected by the person.



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25. The method of Claim 1, wherein the step of sensing comprises sensing sound waves emitted and/or reflected by the person.

26. The method of Claim 1, wherein the step of sensing comprises sensing activity of a device operated by the person.

5           27. An automated method for projecting feature-specific promotional information, the method comprising:  
          sensing an activity;  
          identifying a feature of the activity; and  
          projecting one or more promotional information segments specific to the  
10 identified feature.

28. The method of Claim 27, further comprising the step of offering for sale a service or product associated with a projected promotional information segment.

15           29. An automated method for interactively communicating information to a person and/or determining information about the person, the method comprising:  
          sensing an activity;  
          communicating one or more promotional information segments to a person responsible for the activity; and  
20           determining a level of interest of the person in a communicated promotional information segment.

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30. The method of Claim 29, wherein the step of communicating comprises displaying the promotional information segments on a display means, the method further comprising the step of determining the portion of the display means the person is viewing.

5           31. A system for selectively communicating promotional information to a person, the system comprising:  
            a sensing system for sensing a person;  
            a controller for determining a distinguishing characteristic of the person sensed by the sensing system; and  
10           a projection device for projecting to the person promotional information based on the determined distinguishing characteristic.

32. The system of Claim 31, wherein the controller further determines the person's interest in the projected promotional information.

15           33. The system of Claim 32, further comprising an electronic display for communicating the promotional information.

34. The system of Claim 33, wherein the controller determines the person's interest by determining whether the person is looking in the direction of the electronic display.

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35. The system of Claim 33, wherein the controller determines the person's interest by determining the duration that the person is looking in the direction of the electronic display.

5 36. The system of Claim 33, wherein the controller determines the person's interest by measuring changes in the person's eye pupil size.

37. The system of Claim 33, wherein the controller determines the person's interest by analyzing eye movement of the person.

38. The system of Claim 32, wherein projection device projects promotional information based on the determined interest.

10 39. The system of Claim 31, wherein the system is in communication with a remote host computer.

40. The system of Claim 39, wherein the host computer is in communication with a vendor of a service or product which is the subject of the projected promotional information, the controller further operating to afford the person the opportunity to effect a purchase or order of said service or product.

15

41. The system of Claim 31, wherein the controller determines a distinguishing characteristic by accessing pre-stored information about the person.

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42. The system of Claim 41, wherein the pre-stored information is conveyed via a data link from a remote location to the location from which the promotional information projected.

5 43. The system of Claim 31, wherein the distinguishing characteristic comprises one or more characteristics selected from the group consisting of gender, race, ethnic background, age, nationality, height, weight and shape of the person.

44. The system of Claim 43, wherein the one or more characteristics are determined by facial scanning.

10 45. The system of Claim 43, wherein the one or more characteristics are determined by an optical detector effecting a retinal and/or iris scan.

46. The system of Claim 43, wherein the one or more characteristics are determined by voiceprint analysis.

15 47. The system of Claim 31, wherein the sensing system senses entry of the person into a detection zone.

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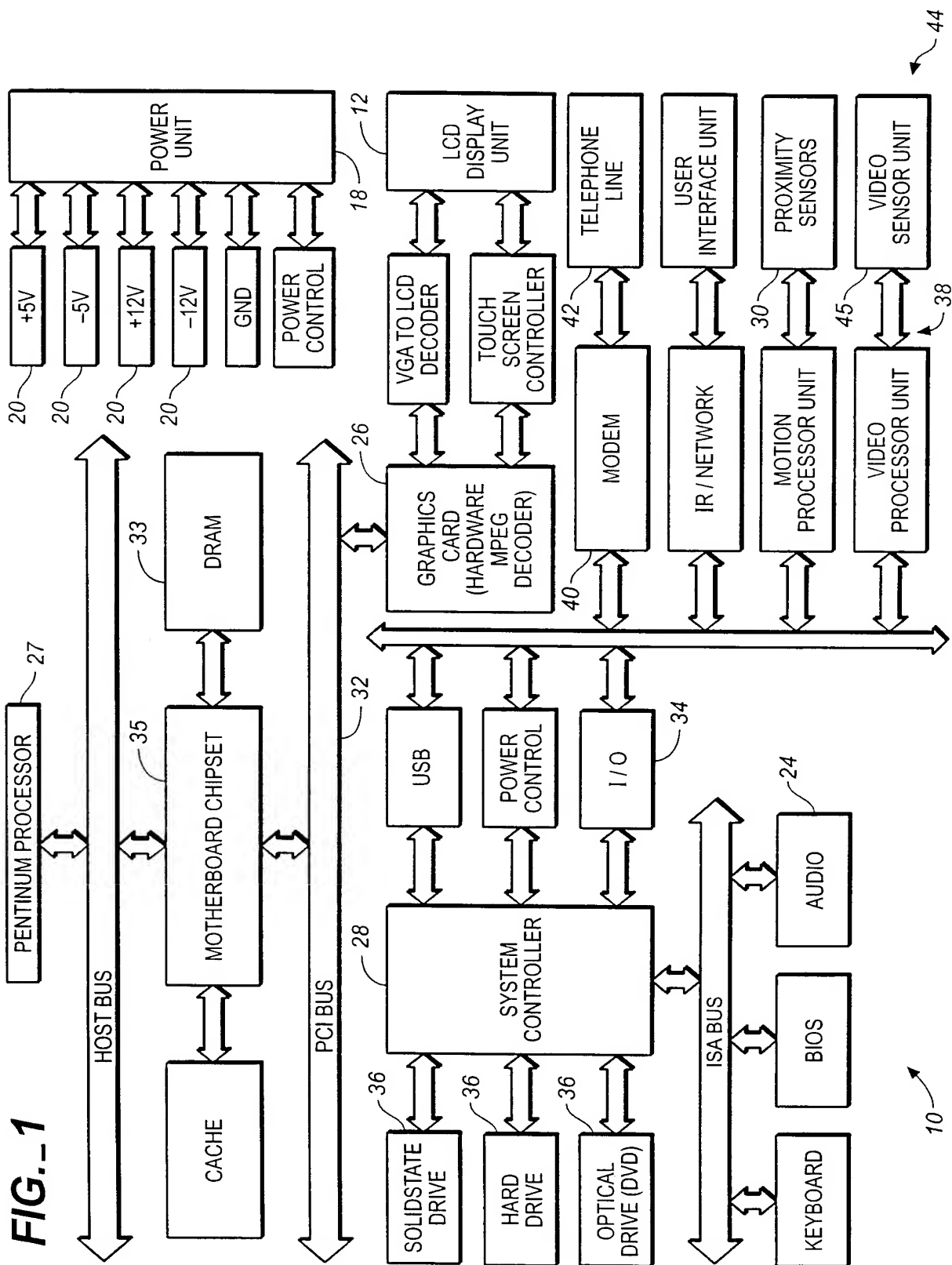
48. The system of Claim 31, wherein the sensing system senses activity of a device operated by the person.

49. A system for selectively communicating promotional information to a person, the system comprising:

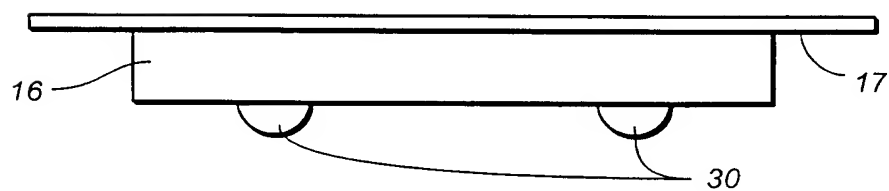
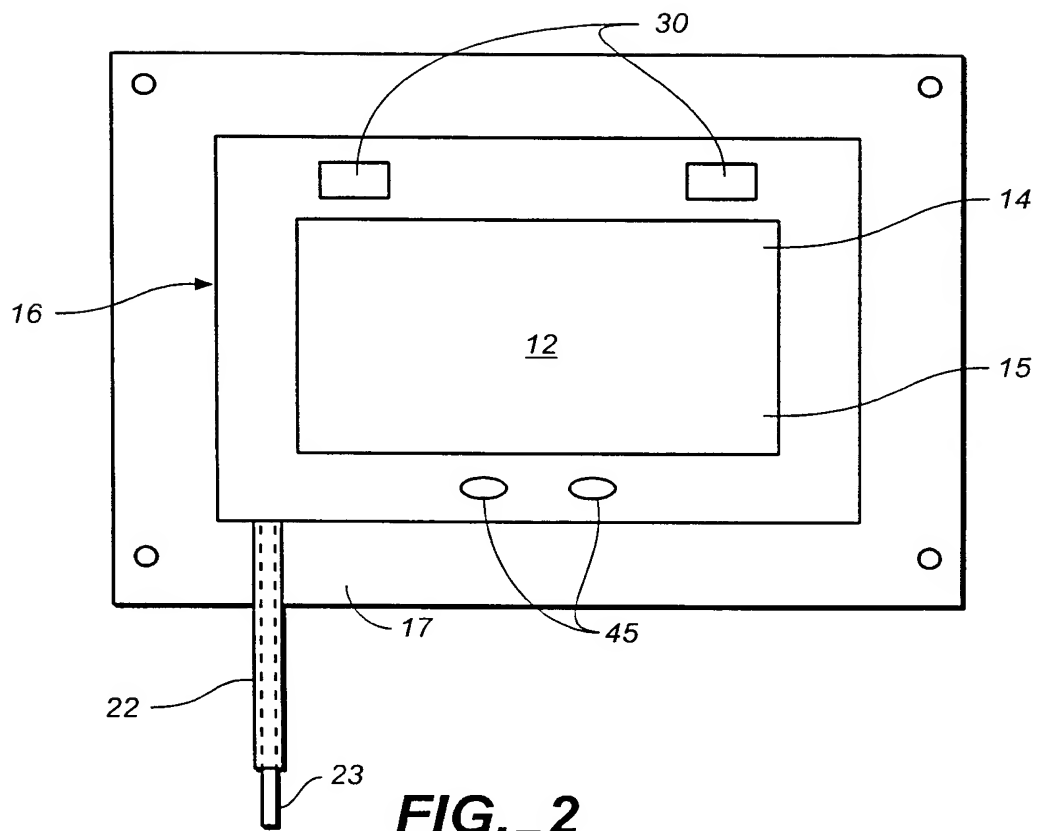
- 5       a sensing system for sensing an activity of the person;  
      a controller for identifying a feature of the sensed activity; and  
      a projection device for projecting to the person promotional information based on the identified feature.

50. The system of Claim 49, wherein the identified feature is a  
10      location of the system for selectively communicating.

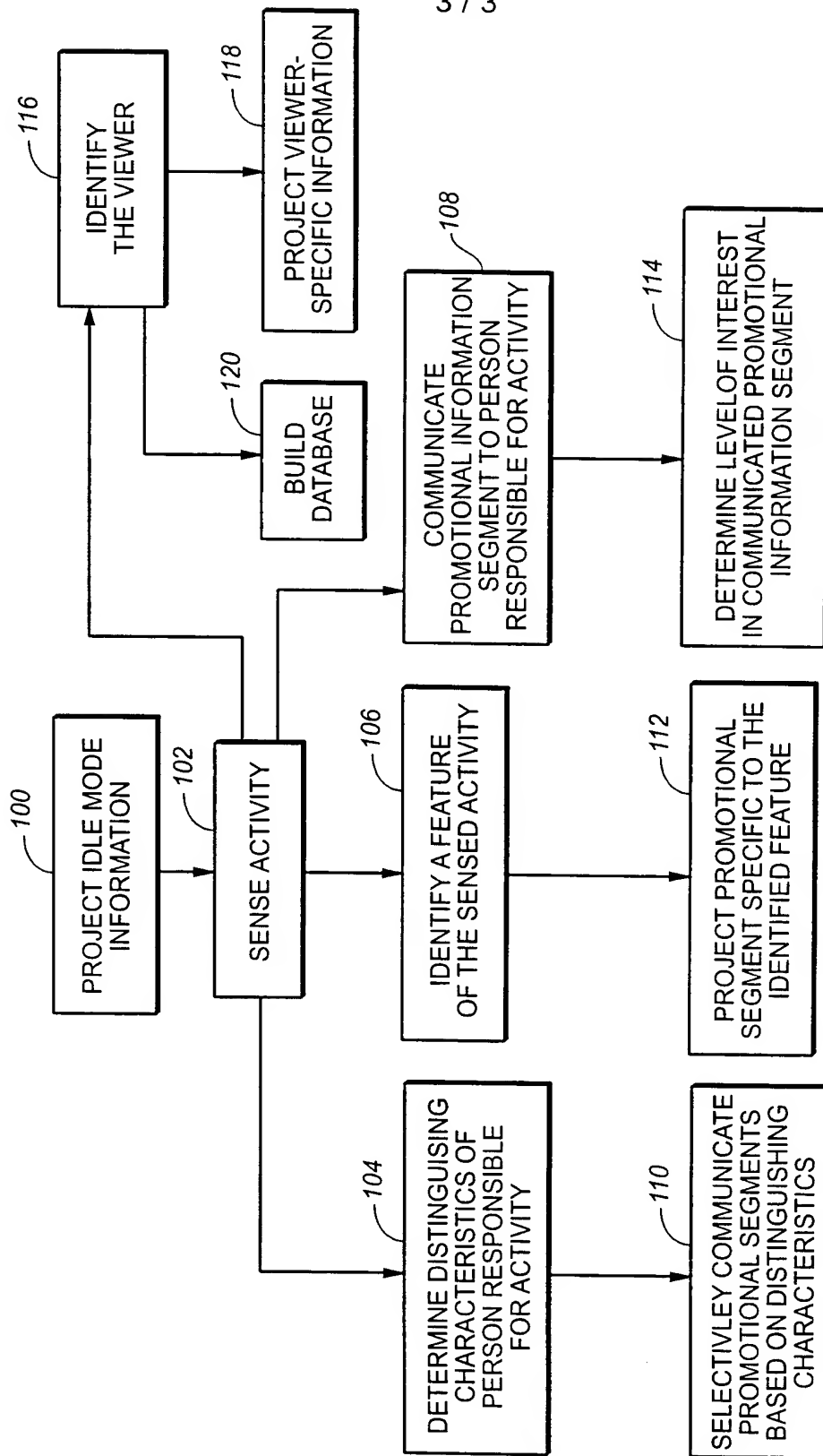
51. The system of Claim 50, wherein the location is identified using a global positioning system (GPS).



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**FIG. 4**



## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/30172

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :G06F 17/60; G09B 5/00

US CL :705/1, 10, 14; 434/307R, 308, 323

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/1, 10, 14; 434/307R, 308, 323

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

MICROSOFT PRESS COMPUTER DICTIONARY

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WEST, EAST, DIALOG, PALM intranet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,966,696 A (GIRAUD) 12 October 1999, col. 4, lines 13-66.	1-51
Y	US 6,160,986 A (GABAI et al) 12 December 2000, col. 10, lines 1-51	1-51
Y	US 6,144,848 A (WALSH et al) 07 November 2000, col. 17, lines 15-36.	1-51
Y	JP 2-273891 A 11 August 1990, right column of page 3, 4th full paragraph.	1-51
Y	US 4,789,235 A (BORAH et al) 06 December 1988, col. 8, lines 8-28.	1-51



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*G* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

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Date of mailing of the international search report

17 APR 2001

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